

# **The LNER "Bongos"**

## **Part II**



**Rodger P. Bradley**

## Post War Austerity

The Thompson era on the LNER was in sharp contrast to the previous twenty years, under the guiding hand of Sir Nigel Gresley. During Gresley's day there were a number of notable designs, and the locomotive stock was represented by a large number of different types, often designed for specific purposes, produced in response to current business and commercial demands. Gresley's designs could almost be described as bespoke, or niche products, aimed at satisfying an immediate business need, and not providing a standard range, or designing motive power which could be used on a wide variety of services. That is not suggesting that as a locomotive engineer, Gresley was not looking into the future, and proposing some far sighted, changes in locomotive design practices. As a technologist, he oversaw the introduction of some radical changes to locomotive design practice, including the early adoption of such details as roller bearings.

The business of running a railway and providing commercial transport services had begun to change dramatically when Edward Thompson took charge, and of course, the demands of the Second World War denied Thompson the luxuries (in locomotive design terms) of the Gresley years. The business was demanding more efficient services, reducing costs - a recurring theme - and simplicity in the locomotive department. The reduction in costs, and increased simplicity in design was more likely to be achieved through more stringent standardisation policies, in turn leading to reduced maintenance costs - a less varied range of spare parts, tools, and other items.

The new order rapidly addressed the issue of standardisation, and the first results of this process, was Thompson's new 4-6-0 design, ordered in August 1942, from Darlington Works, and officially recorded as being put to traffic in December the same year. In fact, the locomotive was inspected at Doncaster on 13th December, and in service on the 19th December, followed in 1943 by another four, with five more in 1944.

## Operation

By December 1944, the first 10 locomotives had been allocated to the Great Eastern Section (Nos. 8301/2/4-7), the North Eastern area (Nos. 8309/10), and in



61183 – pictured at Sheffield under the recently electrified Manchester-Sheffield-Wath route. The 61183 was built by Vulcan Foundry in July 1947, and withdrawn in July 1962, from its home shed of Sheffield. *Photo: GW Sharpe / RPB Collection*

At that time the new “B Class” locomotive was numbered 8301, but its appearance showed that the LNER's new locomotive design team had not thrown the baby out with the bath water. In fact, the first diagram had appeared in November 1941, and based on the successful B17 “Sandringham” 4-6-0, many of the features associated with Gresley designs were still in evidence. The major differences included the new boiler, and two cylinders, with outside gear, in place of the complex Gresley conjugated arrangement. In traffic, the work that the new B type was expected to cover was being done at the time by all existing 4-6-0s (except where the 6ft 2ins pacifics were used), D11, D49, and all heavy 4-4-0s, the C1 class, and all 4-4-2s in passenger service, K2's, K3's, J39's and J6's, amongst other 0-6-0s. The services that the new B type were intended to operate were very wide ranging indeed, and it was ultimately achieved in practice, bearing some testimony to the soundness of the idea.

The class did not become B1 until after April 1943, when the former Great Central Railway engines, which were already classified B1, had been reclassified as B18. Two years later, at the end of the war, the LNER continued the standardisation process, with the ordering of 400 of the new 4-6-0s, as part of its post-war modernisation programme.

Scotland (Nos. 8303/8). From new, the engines were run in from Darlington, and between late 1942, and 1944, were seen at places as far apart as Stratford in north

London, to Perth in Scotland, and during 1943, 8303 "Impala" was the subject of some early testing. These trials took place on former North British, Caledonian, and Highland Railway lines, from Edinburgh to Carlisle over the Waverley Route, and through to Perth, Dundee and Glasgow. From Glasgow, the locomotive was tested over the West Highland line as far as Fort William, and in the far North East, between Aberdeen and Elgin. Overall, the results of this early testing demonstrated the new 4-6-0s to have good acceleration, starting, and free steaming characteristics - despite, apparently poor coal. The trains worked included a variety of freight services, and semi-fast passenger trains. A minor criticism centred around some difficulties experienced when working the engine with cut-offs lower than 25%, which was reportedly due to excessive cylinder compression. That said, the design was an overall success, and reinforced the value of utilising the best practices of the old regime, with the new ideas embodied in Thompson's first new locomotive for the LNER.

Further tests were undertaken during 1944, across the LNER system, with the B1 pitted against the locomotive types it was intended to fully, or partially replace. Not surprisingly perhaps the B1 was successful in each case, although some controversy ensued between the men at Doncaster, and the operation of the locomotive on the old GN of S section. This resolved to strengthening the bridge over the River Spey at Craiggellachie, and a trial of the B1 and its tender on a 53ft 10ins turntable, to prove a point. It had been suggested previously in the Scottish Area that the turntables at places like Keith, Elgin and

Peterhead were too small to accept the B1 and its 51ft 2ins wheelbase. The CME's Department pointed out that the massive P2 2-8-2s were turned at Dundee with less than 6ins to spare at either end of the table, and in any case, the B1 could be attached to the smaller 3,500 gallons tender. In the end, the bridge over the River Spey was strengthened, and the B1s were operated throughout the former GN of S territory.

As B1s began to be delivered in numbers from 1946 onwards, the original locomotives - renumbered 1000 to 1009 - were allocated to the Great Eastern Section (8), and Scotland (2). The first twenty of the new North British built engines (Nos. 1040 - 1059) went to the GE Section too, in order to take over the working of the heavier East Anglian expresses. Remaining NBL built engines were sent to take over duties from ex-GNR atlantics on the Kings Cross to Cambridge duties, and running over former Great Central metals. The first of a new batch of Darlington built engines began to appear in late 1946, and 16 of these were at first sent to the North Eastern area. The next year, as the first order of NBL built engines was completed, the 50 locomotives built by Vulcan Foundry arrived, and in the four months it took Vulcan to complete the order, they were mainly allocated to Sheffield (Darnall), or Manchester (Gorton). By the end of 1947, NBL was well into construction of another 150 of the class, and the remaining 66 appeared under the new British Railways ownership.

Out of the first large orders for B1s that were put into traffic, the majority were allocated to the LNER's



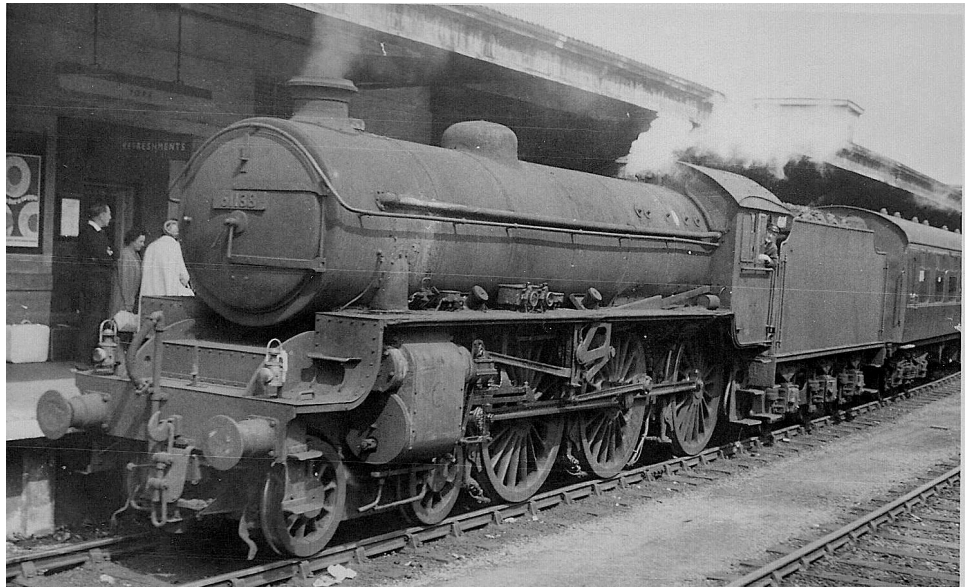
B1 4-6-0s 61243 and 61172 at Crianlarich in the first couple of years after nationalisation, and by 1952, no fewer than 66 of the class were stabled across the Scottish Region. *Photo: Lens of Sutton / RPB Collection*

Southern Area, and the majority of these on the old GCR lines. However, on the GE Section, the BIs were a success too, hauling express passenger trains from Liverpool Street to Norwich - a task later undertaken by BR Standard "Britannia" pacifics. The post war inaugural run of the re-instated "East Anglian" took place behind a BI, No. 1048, and by 1947, more than 50 of the new 4-6-0s were at work on Eastern Section metals. The largest allocation of BIs in 1947 were at Stratford and Norwich, although some 19 members of the then 274 strong class were stabled at Doncaster. The GE Section had an allocation of B17 "Sandringham" Class 4-6-0s, all built by North British, and which were displaced from the front rank passenger workings by the new BIs from 1946 onwards. No less than 70 of the new Thompson 4-6-0s were on GE Section territory by the early 1950s, allocated between Stratford, Ipswich, Norwich, Parkeston, Cambridge, and March.

On the ex-GCR routes between 1946 and 1947, allocations to 11 depots on the Western Section had reached 100, with the lion's share at Sheffield and Gorton in Manchester. Whilst they were employed on express passenger services, including the likes of the "Master Cutler", and "South Yorkshireman", and were liked by the footplatemen, some problems of timekeeping occurred with the heavier loaded trains. BIs were a common sight on Manchester to Sheffield workings in the late 1940s, until electrification of the Woodhead Route in BR days, and on former GCR territory they were confined largely to services north of Leicester from the 1950s.

Kings Cross and the old Great Northern main line saw BIs from 1946 onwards, and they proved popular here too, replacing V2s and pacifics on occasions, and they were used on a variety of services, from suburban, to semi-fasts, and excursion trains. One popular working for the BI, which carried on well into BR days, was the 'Butlins Special' to Skegness, and immaculately turned out BIs could be found on this train into the early 1960s. The "Bongos" were found at work all over the old GNR lines, working out to, and from Kings Cross, Peterborough, Leeds, Sheffield, and Bradford. It seemed that no duty was too demanding, or too small, and the variety of trains included stopping passenger, branch line working in East Lincolnshire, and even the "Fish Specials" to Grimsby, once the preserve of the Great Central 4-6-0s.

Further north, in the LNER's old North Eastern Area, and up into Scotland, the Thompson BIs were genuine mixed traffic locomotives, and could be found on almost any type of service. Initially, they were allocated to passenger and express passenger workings, but were displaced by pacifics on many of the latter, and in the North East, they were mainly allocated to York, Darlington and Gateshead. Interestingly, the 4-6-0s based at Gateshead were predominantly allocated to passenger services. In contrast, other depots, such as Borough Green saw mainly freight work, and from York, the variety of trains included trans Pennine freight trips to Liverpool. From the bulk orders placed with NBL, Leeds Neville Hill, and York received additional BIs, with the Leeds engines relegated to secondary duties after



Looking very much the worse for wear, with almost no discernible markings, No. 61138, built by North British in March 1947, to works No. 25894. This loco was withdrawn in January 1965. Probably not long after this photo was taken.  
*Photo: FMRC / RPB Collection*

pacifics were drafted in during 1949. They were a common sight on a variety of workings out of Leeds, including trips to Scarborough, and Hull, where BIs were stabled at both the Dairycoates, and Botanic Gardens sheds.

In North Eastern territory, the BIs saw a lot of changes from the mid 1950s, with much shuffling between former LNER and LMSR depots in the North and North East. Finally, the growing tide of dieselisation hit the region from about 1957 and 1958 onwards, and like other areas, withdrawals began in earnest from 1962 and 1963.

The pattern was repeated north of the border too, with engines allocated initially to former LNER depots, and covering workings in and around South East Scotland. The BIs replaced 4-4-0 types like the Scott, Glen, and Shire classes on many intermediate passenger workings, and whilst the majority were stabled at depots around Edinburgh, large allocations were made to Glasgow (Eastfield), and Aberdeen (Kittybrewster). Dundee also

had a number of BIs, and services throughout Fife, and into the Central Belt were in the charge of the new 4-6-0s. To the west, the Eastfield based engines worked over the West Highland line, through Crianlarich to Oban, and Fort William. Almost all of the former Caledonian and North British Railway routes saw some services hauled by BIs well into the 1950s. On the Great North of Scotland lines, the BIs were actually the first NEW locomotive type to be put to work there since the grouping of 1923, and performed passenger and goods duties, including the fish trains, and worked over the Aberdeen to Elgin, Buchan, and Deeside lines. Not surprisingly, they were also used to haul the Royal Train.

Over the famous Waverley Route, the BIs, ran through from Edinburgh to Carlisle, and some of the lesser known routes in between. Services between Peebles and

Galashiels were also worked by BIs, along with stopping trains from Carlisle to Hawick. These latter were headed up by engines based at Carlisle Canal depot. Overall, the BIs were a popular engine, and worked trains over former LMSR and LNER metals throughout Scotland, up to the end of steam.

The last orders for BIs were not completed until April 1952, and by that time, no less than 409 of the new 4-6-0 had been built, with the engines numbered from 61274 to 61409 put to traffic after nationalisation in January 1948. The final total would have been 410, but engine No. 61057 was involved in a serious accident on a goods train on 7<sup>th</sup> March 1950 and had been scrapped. All of the class were distributed around the new British Railways Eastern, North Eastern, and Scottish Regions as follows:

- Eastern Region - Western Section - 187
- Eastern Region - Eastern Section - 72
- North Eastern Region - 80
- Scottish Region - 70



61032 "Stembok" – minus its nameplates - having some attention at Hull Dairycoates. This loco was built in August 1947, and was based at Stockton in 1950, but this view is post 1956, with the later BR crest on the tender. Still based at Hull in 1964, until its withdrawal in November 1966.

*Photo: GW Sharpe / RPB Collection*

All 409 locomotives were distributed between 41 depots in 1952, and 10 years later at the end of 1961, there were still 408 of the class in service, despite the pressures of dieselisation, and they were distributed between 44 depots. During that time, regional boundary changes, district boundary changes and inter regional transfers meant that some depots that had had allocations, lost them, and others gained a number of new locomotives. In 1952, the largest allocations could be found at places like Doncaster, Leicester (GC), Sheffield (Darnall), Gorton and Immingham. In the southern areas, large

allocations at Stratford and Norwich, with smaller numbers at Parkeston, Ipswich and Cambridge. In the north east, Darlington, York and Stockton reached double figures, and in Scotland, at Glasgow (Eastfield), Edinburgh (St Margarets) and (Haymarket), and no less than 16 were allotted to Aberdeen (Kittybrewster). Ten years later, Sheffield (Darnall) had by far the largest allocation, with 44 engines, and newer allocations were found at Wakefield, Canklow, and Low Moor. In the north east, again, York had a good stock, but lesser numbers at other sheds like Darlington and Stockton,

whilst in East Anglia and the south; Lincoln, Colwick and Doncaster retained a number of these 4-6-0s.

Deep in the LNER's southern areas, in BR days, the old GE Section was one of the first to see widespread dieselisation, not to mention the successful influx of BR Standard pacifics. The workload of BIs diminished as a result of these actions, but some depots, like March, retained BIs on regular passenger workings until 1960, whilst Norwich drivers preferred the class to the NBL

built "Sandringhams". In North London, Stratford's allocation was cut dramatically, between 1952 and 1961, as diesel traction, and the BR standards came into favour on main line workings. Fittingly, the last steam train into Liverpool Street station, on 9th September 1962, was worked by BI No. 61156.

The following tables show allocations at the year end for the last days of the LNER, the early BR era, and the year in which withdrawals began in earnest:

### Allocation of BI Class 4-6-0s (31/12)

Depot	1947	1952	1961
Kings Cross	14	8	5
Hitchin	14	8	0
New England	10	13	13
Grantham	4	0	4
Lincoln	1	11	17
Colwick	0	10	21
Doncaster	19	20	24
Retford	5	6	9
Ardsley	2	9	7
Copley Hill	2	8	8
Bradford	2	8	0
Neasden	9	9	2
Woodford	8	3	7
Leicester (Great Central)	12	11	10
Annesley	0	3	0
Sheffield (Darnall)	9	21	44
Gorton	15	12	0
Immingham	6	22	24
Mexborough	5	5	4
Langwith Junction	0	0	1
Stratford	11	29	12
Parkeston	6	9	0
Ipswich	9	9	1
Norwich	17	16	7
Cambridge	2	9	9

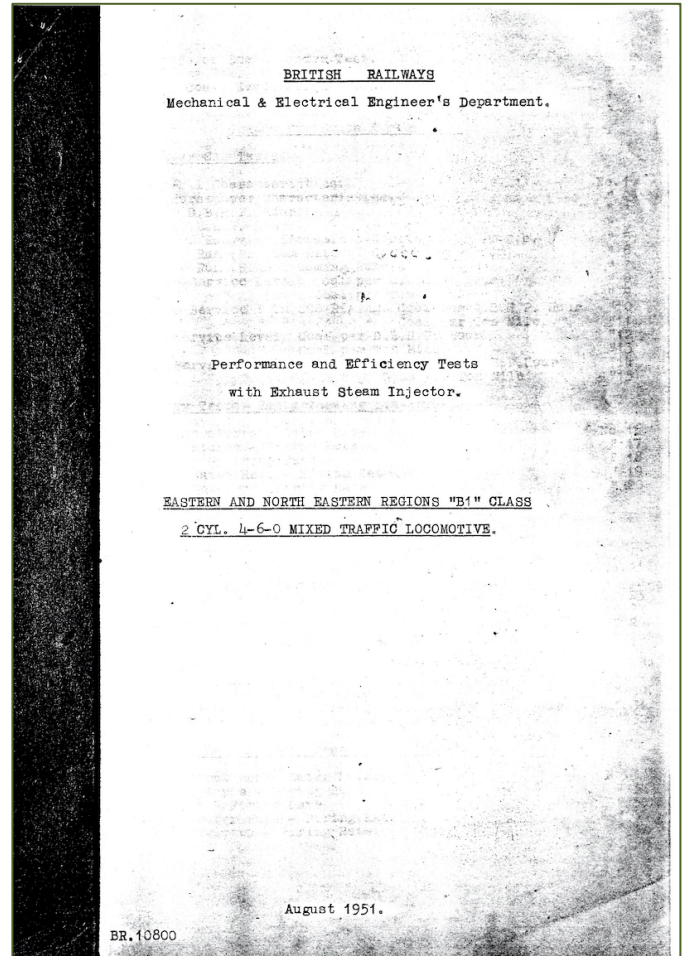
Depot	1947	1952	1961
March	0	0	12
York	9	14	23
Hull (Botanic Gardens)	6	5	0
Hull (Dairycoates)	0	4	9
Darlington	6	18	9
Stockton	5	12	0
Thornaby	0	0	8
Gateshead	6	7	0
Heaton	8	0	0
Tweedmouth	4	4	0
West Hartlepool	0	0	3
Sunderland	0	0	2
Blaydon	0	0	7
Tyne Dock	0	0	3
Borough Gardens	0	3	0
Neville Hill	12	13	1
Canklow	0	0	2
Wakefield	0	0	9
Low Moor	0	0	6
Agecroft	0	0	5
Haymarket	8	8	6
St. Margaretis	0	9	24
Eastfield	8	14	8
Fort William	0	0	1
Thornton Junction	3	7	11
Dundee	3	9	11
Dunfermline	0	0	3
Perth	2	0	0
Carlisle (Canal)	3	4	7
Parkhead	0	1	5
Aberdeen (Ferryhill)	0	0	4
Aberdeen (Kittybrewster)	8	16	0
Keith	1	2	0

## Testing and Modifications

After the initial trial running carried out under LNER ownership, when the design was new, the next major test for the BIs came in 1948, just after nationalisation, and the Interchange Trials began. The major objective of these trials was to establish the best practice in each aspect of locomotive design, and to determine which of the existing designs could be operated on all regions of British Railways. Where this type was found, the plan was to adopt that design for future British Railways locomotives, especially where it met the requirements of route availability, and operating costs. In the trials, through running across the routes of the 'Big Four' was not possible in all cases, but comparisons in different categories - Passenger, Mixed Traffic and Freight locomotives were carried out.

The BI Class 4-6-0 was a mixed traffic locomotive, in the same class as Stanier's 'Black Fives', and the GWR's "Hall", and "Modified Hall" types. The mixed traffic locomotives were tested in June and July 1948, and three BIs (Nos. 61163, 61251/92) were pitted against ex-LMS 4-6-0s Nos. 44973 and 45253, along with 'Modified Hall' 4-6-0 No. 6990 from the GWR stock. They were also tested against Bulleid's new Light Pacifics, of the "West Country" class, and three of these unorthodox locomotives - Nos. 34004/5/6 were involved. The trials were undertaken over the former Great Central and Midland Railway routes out of Marylebone and St Pancras to Manchester, and over the South Devon banks on the old GWR main line from Bristol to Plymouth. In the far north, the former Highland Railway route from Perth to Inverness provided a stiff test, with ascents over the Druimuachdar and Slochd summits.

Some interesting conclusions were drawn on the results of these trials, such as the fact that the BI appeared to



be more economical on the former Midland lines, and the Black Five fared better on the Great Central route!! Outside of its normal territory, the GWR 4-6-0 seemed to show markedly poorer coal consumption, and the Bulleid pacific fared even worse. No testing was undertaken on the Southern Region, but rather surprisingly, the unorthodox Bulleid pacifics turned in some of the best performances on the steeply graded line through the Scottish Highlands. The BI was just about on level terms with Stanier's 4-6-0s in its home territories, and overall, no serious problems were encountered. Minor problems with the steaming rate of the boiler were attributed in part to the arrangement of self-cleaning apparatus in the smokebox, and some exaggerated sideways movement at short cut-offs, or when coasting. Overall however, the 1948 Interchange Trials proved the BI to be an effective mixed traffic design, and aspects of the latest Doncaster design features were seen on later BR



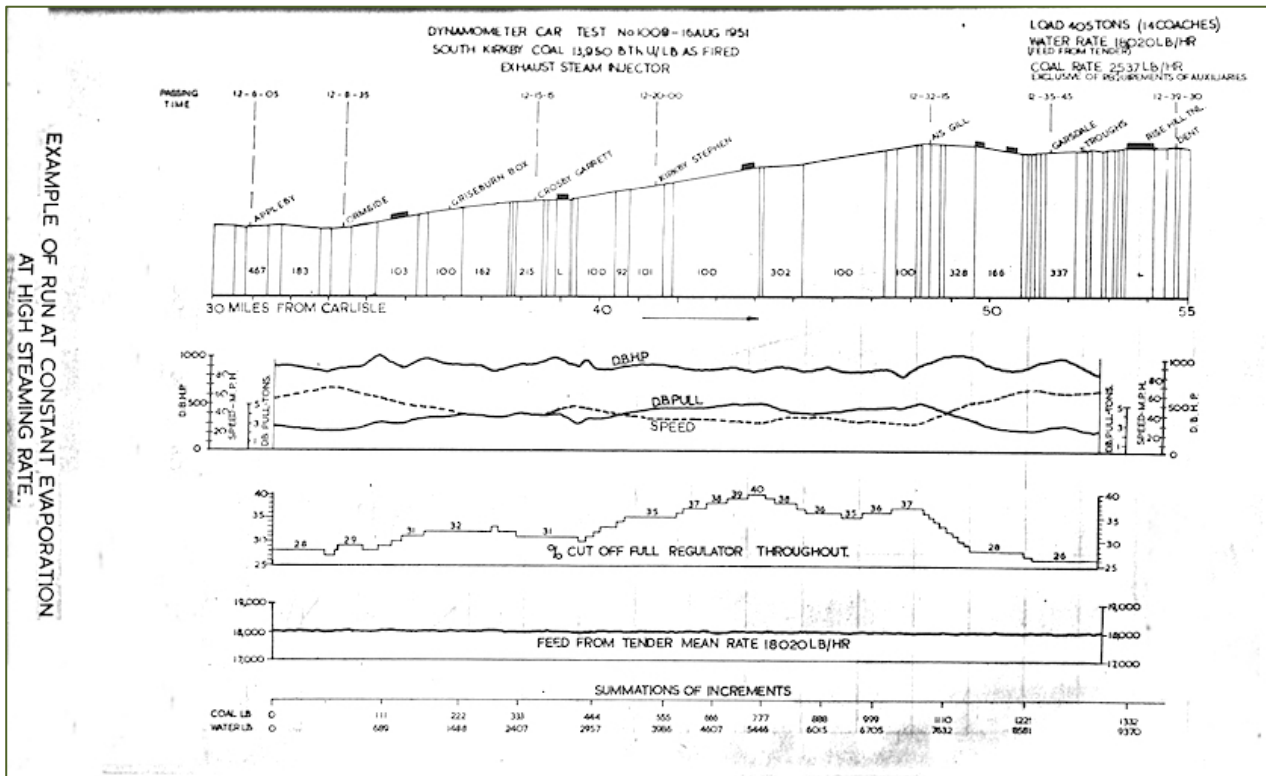
61183 – pictured at Sheffield under the recently electrified Manchester-Sheffield-Wath route. The 61183 was built by Vulcan Foundry in July 1947, and withdrawn in July 1962, from its home shed of Sheffield. *Photo: GW Sharpe / RPB Collection*

Standard classes. Interestingly, Doncaster was the parent office for the design of the BR Standard Class 5 4-6-0, and the LNER design practices in later years for valve gear and cylinder details were adopted for the whole BR Standard range.

The most far-reaching locomotive developments in BR days was the adoption, and provision of information to the general public, of details of locomotive testing and performance. The British Transport Commission initiate the Performance & Efficiency Test Bulletins, and BI Class 4-6-0 No. 61353 formed the subject of intensive trials between 1949 and 1951. The locomotive was built in September 1949 at Darlington Works. The trials were conducted as stationary tests at the Rugby Test Plant, and

proportion of reciprocating masses increased from the normal 30% to 70%. In addition, the locomotive was sent to Darlington before the trials, and had its tyres reprofiled, axleboxes were reconditioned, and new piston and valve rings were fitted.

Using the Swindon method of testing, and two grades of coal (Blidworth and South Kirkby), the BI's boiler proved to be very free steaming, but rather sensitive to any departure from the correct method of firing. The Swindon method of testing required a constant evaporation rate, which in turn, implied constant rates of firing, on the test plant, and out on the road. The engine was recorded as having ridden well, both on the Rugby plant, and out over the Settle line, hauling loads that



Testing was undertaken over the Carlisle to Settle line, along with stationary testing at Rugby. This chart, taken from the test bulletin/report, shows one of the southbound, uphill runs between Appleby and Dent, over Ais Gill summit. The tests delivered a favourable report on this well balanced loco design.

controlled road tests over the Settle to Carlisle line, and were aimed at determining the performance characteristics of the BI Class 4-6-0. It was over a year after the engine was built before 61353 was accepted for testing at Rugby, although from new, it was accepted that four different types of blastpipe arrangement were being tested, on top of the conventional design used on the BI's. The four alternatives tried included two different double blastpipe fitting a Kylchap arrangement, and the multiple nozzle Lemaitre design used on some Southern Railway locomotives. Some initial modifications were made to the BI's blast arrangement, but as these showed no significant improvement, the standard arrangement was used throughout the tests. Prior to the tests - both static and with the Dynamometer Car - 61353 had the

varied between 116 and 436 tons, and on a route noted for long stretches with gradients at 1 in 100. Feed water rates on test ranged from 7,700 lbs to 20,200 lbs per hour, using the exhaust steam injector predominantly, with both types of coal. In fact, the boiler limit was not reached on test, and the trials were constrained by the capacity of the exhaust steam injector, although indications were that the boiler limit was well above the 20,200 lbs/hr actually obtained. Overall, the tests seemed to indicate a good well-balanced design, with a free steaming boiler, and a locomotive that was economic and efficient at the tasks it was set. The report on the testing concludes with various charts of boiler efficiencies, steaming rates, drawbar horsepower figures, etc., but does not summarise the overall performance of



the design. The compilers of the report are at pains to point out that the information gathered is of more importance to the compilation of train schedules, and economic locomotive working, than the success or otherwise of the engineering design.

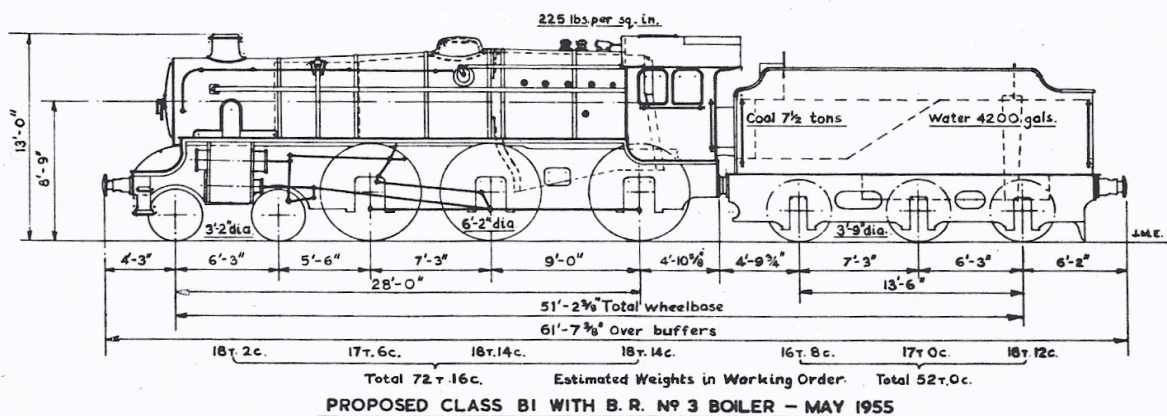
in March and April 1951, as constant speed tests, over the lines between Grimsby and New England, and Whitemoor and Norwich. By the summer of that year, in June to be exact, the new BR Standard "Britannia" class pacifics were appearing, and with 6ft 2ins driving wheels,



Another of the pre-nationalisation built BI's, in this case, North British built 61056, works No. 25812, delivered in July 1946, at speed on a special in the early 1950s. This loco was an Ipswich engine in 1950, but by April 1964, had been withdrawn for scrapping. Photo; Roger Shenton / RPB Collection

These were the most comprehensive tests of the BI, but a further series of trials took place on the Eastern Region

they were in some respects comparable to the BIs. The last comparative trial runs took place between Liverpool



Well – that was a surprise. Of course, it never materialised, but a BI with a BR Standard boiler and running gear.

In 1955 the Modernisation & Re-Equipment Programme was on the horizon, and diesel traction had already proved its worth. On top of that, there was the growing fall in receipts for passenger and goods traffic, so maybe it was just another option to increase the longevity of existing steam types.

Street and Norwich, on passenger workings to which both the BI 4-6-0s, and the new “Britannias” were suited.

Having said that the 100A boiler fitted to the BIs was a good, free steaming design, and the boiler limit was never reached in trials, continuing problems with the deterioration and fracture of firebox plates led to a radical proposal for modification. In the mid 1950s, a number of new BR Standard types were in service, and had been well received, including the Class 5MT 4-6-0, with its Standard No.3 boiler. A design was prepared to equip the BI 4-6-0 with the Standard No.3 boiler, and although much work had been done in the drawing

offices, that was as near as the proposal came to fruition. The primary reason for not going ahead with the plans, was the increase in axle load it would have caused, raising it from 17tons 15cwt to 18tons 14cwt, and thereby reducing the BIs route availability. Meanwhile, less drastic methods, such as providing additional strengthening plates at the firebox flanges were successful, and the 100A boiler was carried to the end, and the reboiling project was dropped. Of course, by 1957 and 1958 the Modernisation & Re-Equipment Programme was in full swing, and the end of steam rail traction was not that far away, and the investment was not being made.

### **Rescue and Preservation**

The withdrawal of the BIs from service began in 1961, and the pace of the withdrawal increased between 1965 and 1966, as the Eastern Region of BR began to see widespread adoption of diesel traction. Between 1961 and 1966, no less than 64 of the BIs were being taken out of service each year, at a rate of about 5 a week. Some of the locomotives were barely 11 years old on withdrawal, and still had plenty of life left in them. The planned electrification of the East Coast Main Line to York by 1960 did not materialise, but the success of the English Electric diesels on Eastern Region routes made large numbers of steam types redundant. Some of the class, 17 in total, were transferred to departmental stock between November 1963 and February 1966. The first nine were transferred in November 1963, with five more in 1965, and the last three in February 1966, but even here, their life expectancy was low, and by April 1968 all of these BIs had been condemned.

In 1967, only 34 BIs were left in service, and these could be found at Hull (Dairycoates), Wakefield, Low Moor, York, Dundee (Tay Bridge), Dunfermline and Thornton Vale. The last of the BIs to be scrapped were numbers 61050 and 61315, which had been given departmental numbers 30 and 32, going to Hesslewoods in Sheffield, where they were cut up in October 1968. Fortunately, two of the class were rescued for preservation, numbers 61264, and 61306. The latter has been in service for a number of years hauling specials and was based for a number of years at “Steamtown”, Carnforth, carrying the name “Mayflower”. However, 61306 never carried a name when built by North British Loco. in April 1948, and the name she now carries, was originally given to engine number 61379.



BI “Mayflower” piloting 4472 “Flying Scotsman” on the Cumbrian Coast Express in the early 1970s, and making plenty of smoke on what was essentially a level track, and drawing some attention. *Photo: RPB Collection*

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